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THE FOREST WORKER

JULY, 1925.

FOREST SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.



THE FOREST WORKER

July, 1925

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ANNOUNCEMENTS

Positions Open for Extension Foresters

A number of States are looking for men to handle the farm forestry extension work upon which they are about to enter in cooperation with the Federal Government under the provisions of the Clarke-McNary Act.

An applicant for a position as extension forester should have good training and personality and a capacity for organization, and should have had experience in similar work. The position involves a considerable amount of field activity, including the examination of woods, outdoor demonstrations, public speaking, and meeting with county agents and with groups of farmers for detailed planning. This is interspersed with periods in the office devoted to correspondence and to the preparation of publicity material and reports. The salaries offered range from \$1,500 to \$3,000 or \$3,500.

Foresters interested in such positions can obtain full information from G. H. Collingwood, Forest Service, Washington, D. C.

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College Position Open

A position as director of research in the retail lumber industry is to be established by Antioch College, Yellow Springs, Ohio, with the cooperation of the Ohio Association of Retail Lumber Dealers. This college maintains a coordinated program by which the two halves of the student body alternate between study and industrial work. In a letter from the dean of the college, Philip C. Nash, it is stated that the duties of the person appointed to this position will be to outline and teach courses in the retail lumber field, to study the retail lumber business in Ohio in cooperation with other colleges of the State, and to attract students and assist in finding employment for them. Some public speaking will be required. Candidates should have had some business success and experience in the retail lumber business. A college graduate is preferred. The beginning salary offered is \$4,000.

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Scholarship Offered in Ohio

A \$4,000 scholarship in any college or university in Ohio is offered by Representative Martin L. Davey to the high school boy or girl in the State who writes the best essay on forest conservation. The contest is open to all regular high school students in Ohio, including this year's senior classes and next year's freshman classes. Essays are limited to 500 words and must be in the hands of the judges by January 1, 1926. The winner will be announced on Arbor Day of 1926. The contest is being managed by the conservation division of the Ohio Federation of Women's Clubs, which will furnish a limited amount of useful and informative printed matter to contestants.

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Charles Lathrop Pack Forestry Prize

The conditions under which the Charles Lathrop Pack forestry prize of \$500 will be awarded this year have been announced by the Society of American Foresters as follows:

"The 1925 prize will be awarded for the paper which presents concisely, and in such a way as to be understood by the average intelligent lay reader, the best contribution to the advancement of forestry. The contribution may consist of original results of the author's work, or may cover a new viewpoint or new presentation of already known facts or principles. Each paper will be limited to 10,000 words in length, and may include a reasonable amount of illustrations if essential. The manuscript must be typewritten, and must be submitted to the Chairman of the Committee, Barrington Moore, 925 Park Avenue, New York, on or before November 1, 1925. The manuscript will not be signed, but each author will write the title of his paper, together with his name and address, on a slip of paper which he will place in a sealed envelope, labeled "Author's Name" and enclose with the manuscript.

"The competition is open to all associate members, members, senior members and fellows of the Society of American Foresters in good standing. The award will be announced at the annual meeting of the Society.

"The Society reserves the right to withhold the prize if in its judgment an award is not justified."

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Tree Photograph Contest

Eight cash prizes for photographs of unusual or "freak" trees will be awarded by the New York State College of Forestry, Syracuse University, as follows: \$5.00 for first, \$4.00 for second, \$3.00 for third, \$2.00 for fourth, and four prizes of \$1.00 each. The photographs must show trees growing within the boundaries of New York State, although any citizen of the United States may submit a picture. It is required that contestants attach to each photograph a description of the tree, naming the species and stating the location of the tree as accurately and completely as possible. The contest will close December 1. All pictures should be addressed to the Contest Editor, New York State College of Forestry, Syracuse, N. Y.

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Yale Forest School Reunion

The twenty-fifth anniversary of the Yale Forest School will be celebrated by a reunion on the school's demonstration and research forest of 1,000 acres near Keene, N. H., on July 28 and 29, 1925. Alumni will be expected to reach the forest by noon on Tuesday, July 28. There will be no set program or formal speeches. The main purpose of the reunion, in addition to the renewal of old friendships and the formation of new ones, is to enable the alumni to see what is being accomplished on the most important of the school forests. Accordingly the entire time during the day will be devoted to field trips and the evenings to songs and discussions around the camp fire.

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Centenary of French Forest School

L'Ecole Nationale des Eaux et Forêts, Nancy, France, extends an urgent invitation to American foresters who may be in France at the time to attend its centenary celebration on July 19 and 20. The Minister of Agriculture will attend, and the program includes excursions into the forests of Haye and Luncey and into the Vosges Mountains.

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Program of World's Forestry Congress

The committee of the International Forestry Congress to be held in Rome in 1926 has published the following list of subjects as indicating the scope of the discussions to be covered in the final program:

Section I. Statistics of area, production, consumption, and trade. Census taking. Forests and the general interests of a country. State intervention in afforestation of bare lands belonging to private persons, communities, and associations, and in improvement and administration of existing forests. Legislation and taxation. Revenue and credits. Experiment stations. Forestry organization in different countries. Instruction in forestry.

Section II. Standardization of commercial usages, freight rates, customs, duties. The lumber, pulp and paper, naval stores, and other forest products industries, including wood distillation. Minor forest industries.

Section III. Technical problems in forestry and forestry operations, including forest ecology, geographical distribution of forest trees, the best timber trees for different climatic zones, forest utilization, seed collection and preservation, nurseries, afforestation of bare lands, cultural practice, working plans, seasoning and preservation of timber, and fire protection.

Section IV. Preservation of mountain and other lands, regulation of mountain water systems and control of floods. Improvement of pasture and agricultural lands. Protection against insects and diseases, and against damage by wind, snow, and fire. Tropical forests and their utilization. Recreation on the forests. Fish and game. Miscellaneous.

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Forestry Exposition in Switzerland

Switzerland is preparing for a national exposition of agriculture, horticulture, and silviculture, which will take place at Berne September 12-29, 1925. The forestry section will be in charge of the Swiss inspector general of forests and will include particularly exhibits on the methods of protection against floods and avalanches in the Alps.

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STATE FORESTRY DEPARTMENTS AND ORGANIZATIONS

Louisiana Bankers Make a Point of Timber Protection

Many Louisiana bankers are making fire protection and reforestation compulsory on mortgaged lands. For the purpose of insuring the resale possibilities of such property they bind the mortgagor to make every effort to prevent forest fires on his land and to plant trees on waste and cut-over areas. This practice is being energetically supported by the Louisiana Department of Conservation, and has been taken up by bankers in all parts of the State. It has spread all the more rapidly since the failure of efforts to boom certain cut-over lands for farming as opposed to timber-growing purposes. The Louisiana Bankers' Association in April, 1925, adopted the following as the standard forestry clause for insertion in mortgages:

"The mortgagor does hereby further bind himself to put his waste or idle lands not suitable to agriculture to trees, and to protect all forest trees and tree seedlings growing on any of the above-described lands, and he further pledges that fires or other destructive agencies will be prevented wherever possible."

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Clarke-McNary Money for Federal-State Cooperation

The Agricultural Appropriation Act for the fiscal year 1926 carries an appropriation of \$660,000 for the work authorized by Sections 1-3 of the Clarke-McNary Act. These sections provide for Federal cooperation with the States in forest fire prevention and suppression and in studies of forest taxation and timber insurance. The following table shows which States will participate in this work during the fiscal year 1926, the areas of State and privately-owned forest lands needing protection in each, the estimated costs of protection, and the allotment of Federal funds:

State	: Area needing : protection : (acres)	: Total : estimated cost	: Federal allotment : (7.4% total cost)
Maine	: 15,000,000	: \$ 450,000	: \$ 33,300
New Hampshire	: 4,300,000	: 134,300	: 9,940
Vermont	: 3,750,000	: 78,800	: 5,830
Massachusetts	: 3,300,000	: 170,700	: 12,630
Rhode Island	: 280,000	: 14,400	: 1,070
Connecticut	: 1,500,000	: 60,000	: 4,440
	:	:	:
New York	: 9,440,000	: 388,500	: 28,750
New Jersey	: 1,906,000	: 82,400	: 6,100
Pennsylvania	: 13,000,000	: 393,500	: 29,120
Maryland	: 2,200,000	: 66,000	: 4,880
Ohio	: 1,100,000	: 27,800	: 2,060
	:	:	:
Virginia	: 14,968,000	: 364,600	: 26,980
West Virginia	: 7,000,000	: 175,000	: 12,950
North Carolina	: 19,500,000	: 487,500	: 36,070
Tennessee	: 10,000,000	: 250,000	: 18,500
Kentucky	: 9,000,000	: 225,000	: 16,650
	:	:	:
Alabama	: 20,000,000	: 450,000	: 33,300
Louisiana	: 13,500,000	: 342,200	: 25,320
Texas	: 14,032,000	: 359,200	: 26,580
	:	:	:
Michigan	: 18,400,000	: 501,100	: 37,080
Wisconsin	: 16,565,000	: 320,900	: 23,750
Minnesota	: 20,900,000	: 655,800	: 48,530
South Dakota	: 50,000	: 1,500	: 110
	:	:	:
Montana	: 4,854,000	: 195,500	: 14,470
Idaho, North	: 3,750,000	: 300,000	: 22,200
Idaho, South	: 1,100,000	: 34,800	: 2,580
	:	:	:
Washington	: 12,300,000	: 425,000	: 31,450
Oregon	: 10,685,000	: 410,500	: 30,380
California	: 17,350,000	: 405,000	: 29,970
New Mexico	: 1,899,000	: 18,900	: 1,400

Totals	: 271,629,000	: \$7,788,900	: \$576,390
Administration			55,000
Forest tax studies			25,000
Unallotted balance			3,610
Total appropriation			\$660,000

During 1926 at least 18 States will take advantage of the provisions of Section 4 of the act, accepting Federal cooperation in the procurement, production, and distribution of forest tree seeds and plants for the purpose of establishing windbreaks, shelter belts, and farm woodlots upon denuded or nonforested lands, such distribution being limited to farmers. It appears that it will be possible to allot \$2,000 to each State qualifying for cooperation in such distribution.

Under

/Section 5 of the act, which provides for farm forestry extension work, the Federal Government will cooperate during the fiscal year 1926 with 26 States. These include Alabama, Colorado, Connecticut, Georgia, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin. This represents an increase of 15 over the number of States in which forestry extension projects were in effect during the year ending June 30, 1925.

This section of the Clarke-McNary Act will be administered by the Extension Service of the Department of Agriculture. The project for each State will be drawn up in cooperation with the State forester if possible. In some cases the State forester may furnish a part of the funds for the cooperative project. It is hoped that the State extension forester will in every case serve as a liaison officer between the State forester and the State agricultural extension service.

Legislative Developments

Michigan's new forest taxation law

Under the Pearson timber tax law recently enacted in Michigan, owners of lands well stocked with immature forests and not otherwise valuable may withdraw them from the general property tax rolls and have them listed on special rolls for as long as they remain under forestry management of a specified grade. In place of the property tax the owner will pay a fixed yearly tax of 5 cents an acre on pine plain lands and 10 cents an acre on hardwood lands. A "yield tax" of 25 per cent of the gross stumpage value of the timber will be collected at the time of cutting. For every acre listed on these special rolls the State will pay to the county in which it is situated the sum of 5 cents an acre annually.

This act, by providing some revenue for the expenses of local government during the deferred tax period, improves on a measure vetoed by the governor in 1923.

California adopts fire-prevention act

The Taylor Act, said by Governor Richardson of California to be the best piece of legislation ever enacted to prevent forest fires, received his signature on May 1. This law prohibits the burning of timber, slash, grass, or brush cover between May 15 and October 31 without a written permit from the State forester, except within any municipal corporation. It also prohibits the throwing of lighted cigarettes or cigars or other flaming substances which may cause a fire. Violation of the law is made a misdemeanor.

High spots in Oregon's new forestry legislation

1. Authority of State Board of Forestry broadened.
2. All forest land brought under the compulsory patrol law.
3. Slash disposal to be handled so as to leave the land in condition for reforestation.
4. Opening of deer hunting season deferred to September 10 as a forest protection measure.
5. State may accept land as gift.
6. State may sell timber from State lands and reserve the land for forest management.
7. Legislative committee appointed to draft reforestation law.

The Vermont Legislature has passed a forestry appropriation of \$22,000. This provides an additional \$2,000 for the purchase of State lands. Also, any unexpended balances of the Department of Agriculture and Forestry may, with the approval of the governor, be used for the purchase of State lands.

The Legislature of Colorado has passed an act providing for cooperation with the Federal Government under the Clarke-McNary Law, and an act making it possible to drive streams in the State containing fish. Heretofore blanket restriction has caused considerable difficulty in handling timber sales where the transportation involved stream driving.

The bill to create a State forestry department in South Carolina retains its place on the calendar pending the next session of the State legislature, with good chances of passage.

Reducing Railroad Fires in Pennsylvania

In order to learn what steps the railroads have taken during recent years to reduce the size and number of fires originating from locomotives, District Forester V. M. Bearer of the Forbes District, Pennsylvania, recently requested brief reports from officials of the larger

companies operating within his district. Every company replied. The reports show that all the companies are endeavoring to reduce fires but that perhaps none of them has put into effect all the measures that have been found to be helpful and practical.

On the Pennsylvania Railroad daily inspection of front ends of locomotives and ash-pans was required during the spring fire season on lines where fire hazards justified these precautions. The necessity for care and alertness in making this inspection was impressed on roundhouse forces, special inspections were made by higher officials of the company, and track foremen were encouraged to accept appointments as State forest firewardens. The company is burning many safety strips every year and is endeavoring to educate track supervisors and section foremen in methods of developing such strips. The general manager's office investigates every reported case in which firemen are seen opening ash-pans while on the road, and in which sparks or cinders are scattered, or fires are set by a locomotive.

The Baltimore and Ohio reported that it had designed ash-pans with top hoppers arranged with slides or doors sufficiently tight to prevent the escape of live cinders, and also a netting arrangement in the front end of the smoke box which prevents the escape through the stack of any sparks of sufficient size to cause fires. This company's engine and train crews carry cards on which is printed the order, "Go Back and Put Out Fire," and in case of a fire along the right of way throw them to the track workers, crossing watchmen, station employees, or section gangs, who have been instructed to obey this order immediately. The Baltimore and Ohio is also developing safety strips along rights of way in accordance with the policy of the State Department of Forests and Waters.

The Western Maryland road had adopted a system of inspection covering front end screens and ash-pan doors, and ~~took~~ strips along 76 per cent of its right of way in Pennsylvania were cut and piled ready for burning. All its trackmen have standing instructions to report sparks from either stacks or fire boxes of passing locomotives. Crews are instructed in such cases to inspect the engines as soon as possible and make an effort to correct any improper conditions. If the engine crew cannot correct the condition, trackmen follow the train on motor cars to extinguish any fire.

The Ligonier Valley reported that it had equipped its engines with #393 netting over drafts, placed extensions at openings of the ash-pans to prevent cinders from rolling out, and widened its safety strips so that all approach the 100-foot measurement. On this road the section foremen are at once given notice of any fire along the right of way. Because of the relatively good condition of its rights of way the section crews usually arrive before fire has made great headway.

From time to time these roads issue to their line officers complete instructions with regard to precautions against fire. In at least one case these instructions are chiefly repetitions of circulars issued by the Department of Forests and Waters during the past three years.

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Idaho Adopts New Fire Protection Rules

Under the terms of recent legislation, the Idaho State Cooperative Board of Forestry is given power to determine policies and to make and enforce rules and regulations for the administration of the forest laws of the State. At a meeting of this board on March 17, 1925, the following rules, which are of especial interest to those States having large areas of woodland and extensive logging operations, were adopted:

RULE NO. 1. SMOKING IN THE WOODS:

During the closed season smoking is prohibited in and around logging or lumbering operations, except at regularly established camps. Operators shall post "No Smoking" signs conspicuously in their camps and in their operating works. All State and forest protective district employees are prohibited from smoking on forest land during the closed season.

RULE NO. 2. FIRE TOOL CACHES AT CAMPS:

During the closed season each logging camp shall furnish every 20 men or major fraction thereof a set of fire tools to consist of not less than 3 axes, 3 shovels, 3 mattocks or 3 grub hoes or 3 hazel hoes, and 2 water buckets. The set or sets of tools shall be placed at convenient places ready for use and used in case of fire only. After a fire the tools shall be immediately replaced.

RULE NO. 3. LOGGING OPERATION PATROLMAN:

During the closed season every logging camp maintaining an average of not less than 40 men shall furnish a patrolman, properly equipped for extinguishing small fires, whose duty shall be to extinguish small fires, to give an alarm in case of a fire which he cannot control, and to report smokers to the camp foreman.

RULE NO. 4. LOGGING CAMP FIRE CREW:

Five men in each logging camp shall be designated by the camp foreman, in consultation with the firewarden, any or all of whom shall be at all times in readiness to go and who shall go, with or without instructions, to any fire which originates in the operating works of that camp.

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Experimental Spark Screen of Close Planted Pines

The Pennsylvania Department of Forests and Waters is conducting an experiment on the effectiveness of screens of close planted pines in preventing fires along railroad rights of way. At "Johnson Bend," near Tidiochton, Pa., a strip one-quarter of a mile wide along the right of way east of the track is being planted with pitch pine trees spaced three feet apart. It is hoped that within a few years this strip will form a screen upon which live sparks will die without reaching the ground. Not only would this eliminate fires which cause the railroad company much expense, but it is believed that in a few years the planting will result in a valuable stand of timber on what would otherwise be a waste safety strip, at the same time greatly improving the scenery.

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Distribution of Planting Stock

More than 115,000 seedlings, practically all hardwoods, were distributed this spring from the nursery of the Indiana Division of Forestry. This is an increase of more than 100 per cent over last year's distribution.

Most of the seedlings were sold at cost to residents of the State for planting on private land. An experimental planting of 15 acres was made at McCormick's Creek State Park. This planting is to be extended to 60 acres and is divided into 5-acre units. Additional plantings were made at the Clark County State Forest, and a demonstration planting was made on the farm of Hon. W. A. Guthrie under the supervision of the forestry division.

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The Vermont Forest Service reports the distribution this spring of about 1,300,000 trees to 234 planters. This is an increase of about 125 planters and about 500,000 trees over last year.

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The State Forestry Department of Maryland and the Maryland University Extension Service this spring planted a total of 26,400 trees on 10 demonstration areas. This is the first planting campaign carried on in Maryland in cooperation with the county agents. The interest shown by the farmers makes it appear probable that a much larger number of trees will be planted next spring.

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Georgia Association Proposes Forestry Bill

The Georgia Forestry Association will again present a forestry bill to the legislature which meets at the end of June. This bill will seek to extend the authority of the present State Board of Forestry, now only an investigative body, and will make provision for a State forester, a fire-protection system, cooperation with private forest owners, the establishment of State forests, and educational work in forestry. A State forestry fund for carrying on the work would be created through a transfer from the General Fund of moneys already collected through privilege license taxes on forest products establishments in the State. The press of the State and practically all the important commercial bodies are backing the measure. It is believed, furthermore, that the legislature is beginning to see the need for an organization to protect Georgia's valuable timber resources.

This will be the last annual session of the Georgia Legislature, so that if the passage of a forestry law for Georgia is to take place within the next two years one must be passed at this session.

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EDUCATION AND EXTENSION

Forestry in the Public Schools

By Marie Heisley

The question as to whether the lesson of forest conservation is reaching the people of the United States finds an encouraging response in the evidences of a growing interest in the subject among school children.

This interest has been developed partly through the use, over a period of 12 or 15 years, of photographic exhibits, lantern slides, motion pictures, and other material furnished to the schools by the Forest Service. Requests for material of this sort have increased in volume until during the past fiscal year 10,000 were filled. This number included requests from both teachers and pupils.

The nature of the requests received indicates that forestry is being studied in correlation with many other school subjects, both in the grades and in high schools. In the high schools it is correlated with agriculture, biology, botany, physical and commercial geography, general science, and manual training. The grade children get it with their manual training and geography and in their nature study and science work.

In Washington, D. C., the study of the forest has been taken up by the children of the seventh and eighth grades and junior high schools. These children took an active part in the observance of American Forest Week. Ten thousand of them attended mass meetings arranged by the nature study department of the District schools, and eighth grade pupils of the John Burroughs School organized on their own initiative a production of Shirley Allen's masque "The Forest Fire Helpers."

In the same way the eagerness of the Boy Scouts to obtain forestry material for their exhibits and examinations and to learn the facts about forest conservation has already blossomed out in parade and pageant devoted to the subject of protecting the forests from fire.

The spontaneous interest shown by such activities is a sign of the most encouraging kind. The study of forestry that has been going on in the schools bears its best fruit when it inspires the children to take an

active part - to do something about it. The next generation is going to need forestry more than this one; and if the progress in getting the study of the forest before boys and girls can be kept up it looks as if they will be in possession of the facts and the inspiration they will need to maintain an adequate forest policy for the Nation.

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Tropical Woods at Yale

The tropical woods collections of the Yale School of Forestry now include nearly 8,000 catalogued wood samples, and are constantly receiving additions. In identifying specimens sent in by collectors, Professor Samuel J. Record of Yale has the cooperation of eminent systematists in the Smithsonian Institution, the Department of Agriculture, the New York Botanical Garden, the Gray Herbarium, and the Field Museum of Natural History. Specimens authenticated by these experts serve as the basis for classifying the woods for scientific purposes and for identifying the timbers of commerce.

The Yale School of Forestry has also the nucleus of a herbarium of important tropical trees; a collection of books, pamphlets, and manuscript reports dealing with tropical forestry; and hundreds of microscopic slides of representative tropical woods of the various natural families.

The work in tropical woods at Yale was initiated in 1916 and has been growing steadily in importance. Results already published include a book of 610 pages, entitled "Timbers of Tropical America" (Yale University Press, 1924); two bulletins in the School of Forestry series, one on *Lignum-vitae*, and one on Cocobolo; a mimeographed bibliography of foreign woods, with supplement; and several contributions to various journals. Two contributions by advanced students have been published abroad, one by Dr. F.B.H. Brown on Hawaiian woods and one by Prof. George A. Garratt on New Zealand woods. A study of the boxwoods of commerce, to be issued as a bulletin in the School of Forestry series, is nearly complete and various other projects are under way.

In the course of the investigations new facts come to light which it is felt should be made promptly available to other investigators; also many problems arise upon which assistance is needed in solution. For these reasons a new series of publications, Tropical Woods, has been instituted. The first number appeared in March and the second in June of this year, and it is planned to issue succeeding numbers at such intervals as available funds and material will permit.

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North Dakota to Open a Forest School

The Legislature of North Dakota has appropriated \$60,000 for the establishment of a forest school at Bottineau. In addition to offering instruction in forestry this school will carry on experiments in tree planting. The presidency of the school has been accepted by F. E. Cobb.

Mr. Cobb is a graduate of the forestry department of the University of Minnesota, and for a number of years was attached to the Dry Land Experiment Station at Mandan. There he collaborated with Fred R. Johnson of the Forest Service in the preparation of Farmers' Bulletin 1312, "Tree Planting in the Great Plains Region." He has spent the past two years at Cornell University assisting in forestry extension work and studying for the degree of Master of Forestry.

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Oregon Agricultural College Acquires Arboretum

The Oregon Agricultural College announces its acquisition of a 341-acre tract to be used as an arboretum and forest demonstration area. The land is situated 8 miles north of Corvallis and one-quarter mile west of the Pacific Highway, and has an elevation varying from 400 to 1,100 feet. The arboretum will be developed on 80 acres of logged-off land on which little new growth is present. Here Dean Peavy has already begun to experiment with trees of native and exotic species. The remaining 261 acres are largely covered with second-growth fir at different stages of maturity and afford an excellent field for experiments in thinning, pruning, logging, and timber sales.

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Memorial Forestry Library Founded

The Forestry Club of the University of Minnesota has received a gift of \$1,000 to be used in founding and maintaining a library in its clubhouse. H. Fergusson of Duluth by this gift establishes a memorial to his son Thorburn, a graduate of the University of Minnesota Forest School, class of 1923, who was a forest assistant on the Guster National Forest and was killed in an automobile accident there in May, 1924.

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Massachusetts Demonstration Forest

In the Mt. Toby Forest, the forestry department of the Massachusetts Agricultural College has an opportunity for the demonstration of forestry principles adapted to conditions in all parts of the State. Within the boundaries of this 755-acre tract are high dry ridges, cool ravines, both warm and cool hillsides, sandy flats, and swampy bottom-land. Owing to this marked variety of soil and topography, and owing also to its location in the intermediate zone between the northern and sprout hardwood regions, the forest contains a wide representation of forest types. In close proximity within it are stands of red and rock oak, of birch, beech, and maple, of white oak and hickory, of hemlock, of white pine, of ash and basswood, and of swamp maple and elm. The forest is representative of Massachusetts conditions also in the fact that it is nearly all second growth following the abandonment of worn-out plough land and pasture. The steady demand from neighboring markets for all its products rounds out an ideal group of qualifications for a demonstration forest.

Only so much timber is being taken periodically from the area as can be replaced by normal growth. Blank spaces are being planted to the most desirable native or imported species, and the stands already present are thinned, weeded, protected, and finally harvested in such a way as to bring on a new crop to replace the old.

As years go by the Mt. Toby Forest is expected not only to show how timber may be grown as a continuous and profitable crop, but also how a public forest may serve the surrounding community by providing winter work for farmers, by furnishing a constant supply of fuel and logs, and by affording all the while a playground for those who love the woods. In addition it will serve as a laboratory for the study of methods of combating forest enemies. The college now has on its program plans for establishing check plots on the forest to study the depredations of the white pine weevil.

Portable Sawmill Demonstration

The first portable sawmill school in the country was held at State College, Pa., the third week in April, under the direction of the department of farm forestry of the college. It was attended by more than 150 sawmill men from all parts of the country and by many college students and other people of the locality. Sawing began on the second day, with S. W. Kresge of Saylorsburg, Pa., as instructor. Mr. Kresge demonstrated

the possibilities of the mill by quickly reducing to inch boards a cherry log 56 inches in diameter and 10 feet in length which had been refused by all the portable mills of the region. He also solved problems in the handling of irregular logs. Power for the mill was furnished by tractors of three different makes. Special interest was shown in a demonstration of the care of cross-cut and circular saws. The largest crowds were drawn to the lectures on the marketing of sawmill products, given by five sawmill men from different sections of the State.

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Cornell Summer Camp

The annual summer camp of the department of forestry of Cornell University this summer will be held in the Adirondacks. Twenty students of the class of 1926 will attend, and Professors Spring, Recknagel, and Bently will be in charge. The first week will be devoted to the study of logging, milling, paper manufacture, and other phases of forest utilization in and around Turner Lake. The remaining three weeks will be spent in field studies in silviculture and mensuration on Lake Francis, Lewis County.

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Sewanee's School Forest

The University of the South, Sewanee, Tennessee, which since the fall of 1923 has been offering courses in forestry subjects under the direction of Prof. George A. Gernatt, has an excellent equipment for field laboratory work in its holdings of 8,350 acres of forest land. This area is located on a plateau of a spur of the Cumberland Mountains with a general elevation of 1,000 feet over the neighboring valleys. It is stocked with second-growth hardwood of more than 50 different native species, with oak, hickory, black gum, maple, yellow poplar, chestnut, and walnut predominating. The university plans to put this land under forest management and hopes that it will develop into a valuable demonstration area for the southern Appalachian region.

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Schoolboys Organize to Fight Fire

Four fire-fighting clubs have been organized among the school-boys of District 6, Tennessee, by W. T. McCloud of the Tennessee Forestry Division. The boys joined voluntarily and with the consent of their parents. Each club is headed by a captain approved by Mr. McCloud and is instructed not to go to a fire without its captain. Aside from fire fighting the clubs are active in developing sentiment against carelessness with fire in the forest, seeing that brush is burned at the right time, and helping to keep the fire-warning posters in good shape throughout the district.

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Historical Arboretum Started at Syracuse

Joan of Arc willows and Robin Hood oaks are growing at the New York State College of Forestry, Syracuse, N. Y. Acorns of the famous Robin Hood oaks were brought from England by Prof. Nelson C. Brown and planted on the college grounds. Prof. John S. Donald of the University of Wisconsin has sent to Syracuse cuttings of willows obtained from the grounds around the chateau at Domremy where Joan of Arc was born. The progeny of other famous trees, American as well as foreign, will be added to this nucleus from time to time to form a historical arboretum. Each tree will be marked with an outline of its history.

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Forest School Finds New Ally

A special committee has been organized by the New York State Association of Builders Exchanges to cooperate with the New York State College of Forestry in efforts to promote forest conservation. The builders find their interests seriously affected by the way in which the increase in the price of wood, the most satisfactory and cheapest of building materials, has discouraged the building of homes by people of moderate means. This action of the builders' associations brings a powerful influence to the support of forestry.

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FOREST SERVICE NOTES

TIMBER GROWING A MONEY MAKER FOR THE PUBLIC

By E. A. Sherman, U. S. Forest Service

Everyone finds it easy to take a lively interest in an enterprise that promises to put a goodly sum of money in his pocket. Commercial salesmen never lose sight of this fact and their selling effort is always based on the argument "There's money in it." Few of them have as good a selling proposition - one promising such good returns on comparatively small initial investment - as the plan of growing timber on public land. Foresters, however, have seldom brought out with adequate clearness and vigor the fact that there is in such a plan a remarkably good financial return to county, State, and Nation - that it will put money into the pockets of the citizens of the community and at the same time into the public treasury. Direct financial returns are by no means all-important in public forestry enterprises, but they often bulk rather large and they have an appeal that needs to be made the most of in arousing interest in forestry and bringing about active cooperation in the movement by the communities, the States, and the Government.

As an example of what may be expected from timber growing on public land, prospective returns, in 50 years, from forest plantings on the East Tawas Division of the Michigan National Forest have been estimated as follows:

INITIAL COST

Planting 3,160 acres @ \$2.94 per acre \$9,390.40

PROSPECTIVE COSTS FOR THE PERIOD 1924-1974

Initial cost with interest @ 6% per annum, compounded \$75,123.20

Fire protection and current administration @ $7\frac{1}{2}\%$

per acre @ 6% per annum, compounded \$53,340.80

(Rate of $7\frac{1}{2}\%$ represents 10¢ for the first
25 years and 5¢ for the second.)

Sale administration, marking, and scaling, @ 25¢

per M for 60,000 M \$15,000.00

(The expense of slash and brush disposal is
taken into consideration as an operation cost
in fixing the stumpage rate.)

Insurance, etc.	\$16,536.00
Total costs	\$160,000.00

PROSPECTIVE RETURNS IN 1974

Yield, at an average of 20,000 ft. B.M. per acre	63,200,000 ft. B. M.
Gross return from sale of 60,000 M @ \$15.00 per 1,000 ft. B. M.	\$900,000.00

DISTRIBUTION OF 1974 RETURNS

County's share, for road and school fund, 25% of total, ..	\$225,000.00
Available for forest road construction, 10% of total	\$ 90,000.00
Costs	\$160,000.00
Remaining in Federal Treasury as net cash return	\$435,000.00

After liberal allowance is made for wiping out every possible item of cost, including interest at a rate higher than the Government ever pays, the enterprise provides \$90,000 for roads and puts \$225,000 into the county funds and \$435,000 into the Federal Treasury. This direct money return alone makes it good business; but the cash profit is only part of the return from the transaction. There is the beneficial influence on streamflow, water power, wild life, outdoor recreation, and employment. The big fact, however, the fact that makes the entire activity most worth while, is that in 1974 there will be standing on these 3,160 acres of land a forest of merchantable trees, a great natural resource requiring logging operations, sawmills, transportation, and other industries. These mean employment for many people. They mean homes, families, wealth. They mean money in the pockets of the citizens of the community and the State. Even without its return of \$225,000 in cash the county might well encourage such an activity and remit all taxes upon it; even without the profit of \$435,000 the Federal Government might well underwrite the initial costs.

The same figures might be applied to an estimate of the returns from timber growing by the States, except that a capital cost of \$5.00 per acre would probably be assumed because of the necessity of buying land. This capital cost may be somewhat low, but this would be more than offset by the heavier yield from better lands. Good white pine lands adjoining the Michigan National Forest, capable of a yield of 40,000 feet per acre at the end of 50 years, can be bought for \$1.00 to \$1.50 an acre.

Michigan might extend these figures to 3,000,000 acres and at the end of 50 years return about \$15,000,000 net to the State treasury after redeeming 6 per cent bonds which had carried all the accumulated costs of 50 years. The same thing is possible for Wisconsin. In Minnesota the 11,000,000 acres of waste cut-over land might by foresight in time be made to pay \$40,000,000 or \$50,000,000 a year into the State treasury.

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National Forest Management Plans
By I. F. Eldredge, U. S. Forest Service

Increased demand for national forest timber has led recently to greater activity in the work of organizing timber sales and developing new working plans. A technique in the formulating of management plans on the national forests is being developed that represents a practical application of conventional forestry methods to American conditions to an extent justifying its recognition as something more than mere adaptation of European methods.

At present 71 management plans have been approved by the Forest Service. Of these 33 are in the Eastern District and the rest are distributed rather evenly among the other districts. Many others are now in course of preparation and it is expected that by June 1, 1926, systematic management plans will be in effect on at least 100 working circles.

In the 156 national forests there are between 600 and 700 working circles, containing a total of about 80,000,000 acres of timberland. In about half of these, management plans will probably be required within the next 10 years, either because of the demand for timber or because of the need for cutting for silvicultural reasons. Good management dictates that the overmature timber that forms so large a part of the stand throughout the national forests be treated with the ax as soon and as fast as possible in order that the stands now stagnant or retrogressing may be put in condition to yield the maximum possible increment.

The preparation of plans of the conventionally intensive type for 300 working circles, covering perhaps 30,000,000 acres, would be a prodigious task involving the expenditure of millions of dollars annually and the maintenance of a large organization of specially trained men. Such an effort cannot be contemplated for some time. The situation is now being met by the formulation of very simple plans such as can be drawn up in each forest by the local staff, with a minimum of outside assistance, on the basis of available data on volume, growth, and yield. Though lacking the finish, precision, and comprehensiveness of the working plan of the text-books, these management plans give a satisfactory answer to the supervising forester's question, "What amount of timber should I cut, and when and where and how should I cut it?" Furthermore, these plans are made to meet almost at once the hard test of practicability, and are adjusted by trial until they can stand the test.

Air Patrol to Fly Again

Air patrol of the national forests will be resumed this season on the basis of a special appropriation of \$50,000. Airplanes have been used in connection with fire control on the national forests every year since 1919, but only twice before has intensive use been provided for. In the fiscal year 1926 the appropriation for aerial forest protection will be administered not directly by the Air Service, as in the past, but cooperatively by the Departments of Agriculture and War. The Air Service will furnish and repair 10 planes and will detail one officer to duty with the Forest Service. The Forest Service will employ members of the Army Reserve Corps as pilots. Five bases are to be maintained, one each at Eugene, Oregon, and Vancouver and Spokane, Washington, and two in California.

As a means of fire detection aircraft have been used with especial success in certain provinces of Canada, where wide stretches of forest are entirely uninhabited and very difficult of access. The many lakes of Ontario and the deeply indented coast line of British Columbia make it possible to fly low over their forests in seaplanes. In the forests of the United States where fire gives the most trouble seaplanes cannot be used, and even while the air patrol is in force the work of fire detection will be entrusted chiefly to the system of stationary lookouts now in use.

For other types of forest protection work, however, aircraft have proved invaluable in the United States. In case of a large fire the officer in charge can by half an hour's flying get information unobtainable in any other way as to what is happening in various sectors of the fire's edge. When the atmosphere over a forest is so filled with smoke - which may either have arisen there or drifted from some remote area - that the mountain-top lookouts become useless for days or even weeks, aerial observers can still detect or watch fires by means of a vertical view through the smoke screen. Aircraft are the most efficient means of detecting lightning-caused fires while they are still in the smoldering stage. And finally, a distinct educational value attaches to the use of aircraft on the forest. It is recorded that in one California valley where fires had been exceedingly numerous burning was brought to a dead stop by the institution of semidaily patrol with two planes - which the inhabitants believed to be equipped not only with powerful telescopes but with machine guns! Even where it is not supposed to threaten a machine-gun attack on the camper who drops a burning cigarette, the air patrol very effectively impresses on the public mind a warning against carelessness with fire in the forest.

Senate Investigates Administration of Grazing Lands

By Will C. Barnes, U. S. Forest Service

An investigation by the Senate Committee on Public Lands and Surveys into matters relating to the national forests and the public domain and their administration was authorized by a resolution passed in February, 1925. This investigation began with hearings before a subcommittee in Washington on April 17.

Senator Stanfield, chairman of the subcommittee, outlined his view of the administration of grazing lands by the Forest Service and the situation by which the investigation was called forth in the following remarks:

"To a considerable extent the grazing upon the forest lands has been improved. The stockmen have been benefited by protection against unpermitted users who would otherwise have overstocked the land and interfered with the real rights of those to whom permits have been issued. During the last four years western stockmen have been seriously disturbed by the policy adopted by the Forest Service in respect to the raising of charges for the grazing and the continued reduction in the numbers of livestock which the old users are permitted to graze upon the forest. It appears altogether necessary and desirable that Congress should define, in as much detail as may be deemed wise, the plan and policy of the regulation of the grazing and thus instruct the executive officers as to the methods to be followed in the administration of details and matters which cannot fully be covered in the law in a way to meet varying conditions of locations and seasons."

The Chief of the Forest Service appeared before the subcommittee on April 17 and succeeding days. His statements, which consumed more than four hours' time, covered the whole history of the management of the grazing ranges on the national forests from 1906 to 1925.

First Assistant Secretary of the Interior Finney was called before the committee and testified in regard to the administration of the public domain by the Department of the Interior. In response to questions as to the desirability of supplanting the rules and regulations established by the Secretary of Agriculture for the administration of the grazing lands on the national forests with definite laws, he gave the opinion that such a change should be made. In addition he emphatically affirmed the belief that the Forest Service should become a part of the Department of the Interior.

At the close of the hearings in Washington the subcommittee adjourned, to resume hearings in the field, first at Douglas, Ariz., and later at Tucson, Globe, Phoenix, Prescott, and Flagstaff. It planned to terminate these hearings about June 25, then to return to Washington, and to resume hearings at Salt Lake City on August 23 and continue them throughout the West.

The subcommittee has called upon the Forester for a large amount of statistical information, including a complete list of the names and addresses of the 35,000 permittees using the national forest ranges during the current grazing season.

If one may judge from the questions asked of the officials called before the subcommittee and the statements made by its members, one of the objects of the investigation is to ascertain whether or not the present system of handling the national forests, especially as it concerns grazing, should not be changed to definite congressional enactments which would replace to a large extent the rules and regulations established under the administrative authority of the Department of Agriculture. Another question before it is that as to whether grazing fees should be placed on a "cost of administration" basis, disregarding the value of the forage, with the idea of lowering them by fully two-thirds. In addition the subcommittee has under consideration the proposal that a board of appeals or other tribunal be established in Washington to which national forest permittees may appeal as against decisions of forest officers in regard to their use of the ranges, reductions under permits, trespass charges, etc. Provision for such a board was included in the Phipps Grazing Bill, which during the last session of Congress passed the Senate but failed of passage in the House.

The hearings will undoubtedly be of great interest to those western stockmen who are permittees on the national forests and who would like to have their present grazing privileges on Government lands recognized by Congress as vested rights - in other words, to have themselves, as users, made part owners of the real property.

Forestry Gets Into the Movies

The movies took up the forestry idea with characteristic enthusiasm during American Forest Week and gave a remarkably generous showing of Forest Service slides and films. Through the courtesy of the Motion Picture Theatre Owners of America forestry slides were shown in 10,000 theatres throughout the country with weekly admissions of approximately 30,000,000. Scenes from Forest Service films were run in the Pathe news reel, which is estimated to reach 50,000,000. Topics of the day carried a message from the Presidential Proclamation to something like 25,000,000

attendants at Keith's and other vaudeville theatres. Regardless of the fact that these numbers include a good many duplications, it appears that through the movies the forestry idea made a pretty clean sweep of the country.

This widespread presentation is not the only advantage of the movie showing. There is the value of catching the public when they are in the mood to be entertained and therefore more alert than they would be over a magazine or paper. Those before whom a film message is flashed actually read it. And the very fact that forestry got into the movies so successfully is an encouraging sign - it means that at least in a general way forestry is a subject of timely interest and recognized as such by movie people and their patrons. It is only a step from such interest to favorable action.

Spotting Beetle Infestations from the Air

An aerial survey of the San Joaquin areas of the Sierra National Forest, which are infested with the mountain pine beetle, was made in May. It had been demonstrated that under certain conditions the hypersensitized panchromatic films used by the Air Service in photographic mapping would register the coral and red foliage of the infested trees in strong contrast to the normal green of the forest. Two planes were sent out from Crissey Field, at San Francisco. One carried the Air Service photographer and the other an entomologist of the Department of Agriculture, who endeavored to spot the infested areas on a map and who found it possible at an average elevation from the ground of 9,000 feet to get an excellent idea of the general distribution of the infestation. Nearly 20 square miles were photographed.

Fire Weather Forecasts

Arrangements have been made with the Weather Bureau to have forecasts of dangerous fire conditions wired direct from Portland and San Francisco to the forest supervisors in California, Oregon, and Washington. Each forecast covers 12 to 36 hours or more. This year the forecasts contain information as to wind direction, velocity, precipitation, and, for the first time, probable relative humidity. Forest officers in charge of fire-protection organizations interpret these forecasts and apply them to local conditions.

The Northern Rocky Mountain Forest Experiment Station is sending out to adjacent national forests fire weather warnings based upon the wireless messages received from San Francisco and including also forecasts based upon duff moisture determinations.

The forecast service for the central hardwood region and for the Northeast terminated with the oncoming of summer. During the eastern fire season the district forester received detailed information regarding weather conditions, particularly as they applied to the southern Appalachian region. When conditions were especially threatening the information was forwarded to the forest supervisors. In the Northeast forecasts were issued on a 1, 2, and 3-day basis to the State foresters and other agencies, giving information as to temperature, wind, and storm movements.

It is not unreasonable to suppose that within a few years the forest fire weather forecast service will reach most of the important forest agencies in the United States.

A Twenty-two Month Old Fire

A fire on the Santa Barbara Forest, California, has been burning ever since September 1, 1923. It started near the mouth of the Oso Canyon where the Santa Ynez River enters. In its early stages it threatened the city of Santa Barbara and burned over an area of approximately 60,000 acres. This area included a good part of the city's watershed, from which great quantities of silt have since washed into the reservoir. Later the fire burned for a long distance up the Santa Ynez River through an oil shale formation, and this shale in many places ignited and burned through the entire following winter. To this day, during a rain storm the steam from the water falling on the burning shale takes on the appearance of a small volcano. There is no telling how long this will continue to burn. Last summer weeds ignited from the shale, and since there is a heavy growth of weeds and grass throughout the burning area the forest supervisor has arranged for a constant watch over it during the present fire season.

GENERAL FOREST NEWS

National Committee on Wood Utilization Organized

A practical working organization has been completed to carry forward the movement for wood waste reduction recommended by the National Conference on Utilization of Forest Products held last November in Washington, D. C., at the call of the late Secretary Wallace of the Department of Agriculture. With the approval of President Coolidge a National Committee on Wood Utilization held its first meeting in Washington on May 2, 1925, at the call of Secretary Hoover of the Department of Commerce. Secretary Hoover is chairman and Chief Forester Greeley vice chairman of the committee, which has a membership of 22 representing the railways, the paper and pulp industry, purchasing agents of the country, wood-using industries, lumber manufacturers and retailers, architects and contractors, the American Engineering Council, and the national farmer organizations. The chairman and vice chairman are to choose a director for the activities undertaken by the committee, and another meeting will be called in the fall when the director has had an opportunity to formulate a plan of action.

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Californians to Take Fire-Prevention Pledge

A campaign for the prevention of man-caused forest fires in California during the present tourist season has been launched by the California Development Association, the State Chamber of Commerce, the State Board of Forestry, the California White and Sugar Pine Manufacturers' Association, and the Federal Forest Service. Four regional committees are active in the State, and local committees are carrying the campaign to Boy Scouts, Girl Reserves, and other boys' and girls' organizations, all of which may compete for various prizes.

The campaign centers around a contest in which boys and girls canvass for signatures to a forest-fire prevention pledge. Each chamber of commerce has agreed to provide five local prizes: \$10 for the greatest number of pledges; \$5 for the second largest number; and third, fourth, and fifth prizes of \$2 each. The newspapers will carry daily stories on fire prevention and on the standing of the contestants.

The central committee will donate to the highest individual boy or girl in the State a prize of \$50 and to the second highest a prize of \$25. The highest ranking Boy Scout patrol will get a trip to see the Big Trees of northern California, and the two highest ranking Boy Scout troops silk troop flags.

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Barnes Wants to Know

While I was browsing through a copy of Marsh's "The Earth as Modified by Human Action," in search of references to damage from the grazing of domestic livestock, my attention was drawn to a note concerning the difference in cut of sawmills as between night and day operations.

"Foresters and lumbermen, like sailors and other persons whose daily occupations bring them into contact, and often into conflict, with great natural forces, have many peculiar opinions, not to say superstitions. In one of these categories we must rank the universal belief of lumbermen, that with a given head of water, and in a given number of hours, a sawmill cuts more lumber by night than by day. Having been personally interested in several sawmills, I have frequently conversed with sawyers on this subject, and have always been assured by them that their uniform experience established the fact that, other things being equal, the action of the machinery of sawmills is more rapid by night than by day. I am sorry - perhaps I ought to be ashamed - to say that my skepticism has been too strong to allow me to avail myself of my opportunities of testing this question by passing a night, watch in hand, counting the strokes of a mill saw. More unprejudiced and, I must add, very intelligent and credible, persons have informed me that they have done so and found the report of the sawyers abundantly confirmed. A land surveyor, who was also an experienced lumberman, sawyer and machinist, a good mathematician and an accurate observer, has repeatedly told me that he had very often "timed" sawmills, and found the difference in favor of night work above 30 per cent."

This was written in 1863. What have sawmill operators of recent years to say on this question?--Will C. Barnes.

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Balsa for Cold Boxes

The unusual characteristics of balsa wood, long known to scientists, have recently brought it into rather extensive commercial use. A process has been discovered for sealing the air cells with which it is honeycombed and thus making it a natural insulation against either heat or cold. Commodities forwarded in balsa containers remain in transit for from 48 to 60 hours without varying more than 10 or 15 degrees from the temperature at which they were packed. Not much more than half as heavy as cork, this wood is said to be as strong as pine and nearly as resilient as spruce. The balsa boxes now being manufactured will stand the wear and tear of from 100 to 200 round trips.

Yeast which otherwise requires ice jackets is now being shipped in balsa boxes, and a test has proved the feasibility of shipping ice cream by this means without ice.

The balsa tree, which is native to Ecuador and other parts of Central and South America, ordinarily attains its maximum height of 30 to 40 feet within one year after the seed is planted. The diameter increases thereafter at the rate of about 5 inches a year, and the trees are ready for cutting at the end of five years.

Little heavy machinery is required in logging and mill operations with this wood, since one man can handle a large log without difficulty.

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Millions of Trees Planted in the Adirondacks

Private companies this year carried out in the Adirondacks what is said to be the greatest tree-planting program on record for that region. The Chateaugay Ore and Iron Company set out 2,300,000 trees raised in its own nursery, mainly red pine, on 19,000 acres of its land between upper and lower Chateaugay Lakes. The St. Regis Paper Company planted 1,200,000 trees from its nursery in wilderness lands in Santa Clara, Franklin County, employing 95 men under the direction of foresters.

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Growing Redwood Timber

In the California redwood region companies which produce somewhat more than 70 per cent of the annual cut are managing their properties on the basis of permanent forest production, and companies which produce an additional 20 per cent are now investigating the possibilities of such management. Plantings during the winters of 1923-24 and 1924-25 covered approximately 800 and 3,500 acres respectively. It is expected that the increase in the supply of nursery stock will permit the planting

of 6,500 acres next winter and of still larger areas in succeeding years. In addition to fire protection and planting on cut-over lands, the first-mentioned group of companies are conducting some experimental thinning of second-growth stands to determine the possibility of marketing material from this source and also the effect of the thinning upon the trees which remain.

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Growing Pulp Wood at Bogalusa

Since the organization of its forestry department in 1920 the Great Southern Lumber Company, Bogalusa, La., has reforested 73,980 acres of cut-over land with such success that this area can now be counted on to grow each year an average of one cord of wood per acre. At this rate the reforested areas produce annually enough wood to operate the plants of the Bogalusa Paper Company about 300 days. The fire protection system in force over 219,000 acres, including the reforested areas, during the past fire season held down the total burned area to 6,516 acres, by 84 fires.

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Profit in Naturally Seeded Shortleaf

A profit of \$100 an acre in 25 years on naturally seeded shortleaf pine is reported by E. A. Spainhour of Burke County, N. C. In a stand of pine which had come up in an old pasture 25 years ago he cut and sold the timber on a tract of three-quarters of an acre. The cut amounted to 30 cords, or the equivalent of 40 cords an acre. The wood sold for \$5.00 a cord, or \$200 an acre. Mr. Spainhour, who is a forest warden in the employ of the forest service of the North Carolina Department of Conservation and Development, recorded the costs of the operation and found that the cutting and hauling each cost \$1.25 per cord, making the total expense \$2.50 per cord. The profit was thus \$100 per acre, or \$4.00 per acre for each year of the 25-year period - not at all bad for worn-out pasture land.

Burke County is in western North Carolina where the Piedmont Plateau merges into the foothills of the Appalachians. The rate of growth is probably somewhat slower there than at lower altitudes, but 40 cords in 25 years is an average growth of one and three-fifths cords yearly.

Forestry Solves Problem of Georgia Planter

That private forestry can be made to pay is being demonstrated by G. K. Sessions of Cuydell, Ga. The havoc exacted by the North and inroads of the boll weevil left Mr. Sessions with 100,000 acres of land unprofitable for agricultural purposes. While many of his neighbors similarly situated were leaving their plantations to seek city employment or letting large areas go for taxes, he began a study of the material on forestry supplied by the Federal Government and the State of Georgia. After arranging for fire protection of his second-growth timber, he provided an ideal seed-bed for slash pine by draining swamp areas and cutting the cypress. This operation paid for itself, and the drained land soon produced thousands of slash pine saplings. Mr. Sessions is now netting \$1.00 per acre annually from his timber and expects this income to increase each year as the trees grow and his operations continue.

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Corporation to Handle Logged-off Lands

A million-dollar corporation which will hold for reforestation purposes extensive cut-over timberlands in the State of Washington has been organized at Tacoma, under the name of the Weyerhaeuser Logged-off Land Company. G. S. Chapman, formerly of the Western Forestry and Conservation Association and now forester for the Weyerhaeuser interests, will be its active manager. All the stock will be held by Weyerhaeuser interests.

This is the first large-scale attempt by private capital to solve the reforestation problem in the Pacific Northwest.

The corporation is empowered to acquire logged-off lands and to engage in reforestation, land clearing, farming, stock raising, and the conduct of experimental and research work as a means of restoring idle cut-over land to productivity. One of its first activities will be a scientific survey of logged-over lands, in which more than 150,000 acres will be classified according to value for agriculture or for timber growing.

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Money paid annually for freight on wood shipped into New York State would meet the cost of reforesting nearly all the waste land in the State. According to estimates of the New York State College of Forestry, these freight charges amount to about \$55,000,000; and the 4,000,000 acres of waste land in New York could be planted at an average expense of \$10 to \$15 an acre.

Birds Multiply under Forest Protection

On an area of some 35,000 acres of piney woods cut-over land in Washington Parish, near Bogalusa, La., fires and hogs have been kept out since 1920, and doves hatch by the thousand. Safe from these two enemies, the birds nest on the ground. Larks and quail also have increased marvelously. If such protection is extended both the wild pigeon and the turkey can be brought back to the forests of the South.-- J. K. Johnson, Forester, Great Southern Lumber Company, in the Southern Lumberman.

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Franconia Notch to Become State Property

The preservation of Franconia Notch, in the White Mountains, has been provided for through the appropriation of \$200,000 toward its purchase by the State of New Hampshire. Owing to the burning of the two summer hotels whose owners had for 50 years protected the forests for 7 miles up and down the Notch, sale of the area for lumbering purposes was contemplated. Conservationists, led by the Society for the Protection of New Hampshire Forests, were aroused by the danger to the beauty of the Notch. It is expected that the State fund will be supplemented by popular subscription.

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FOREIGN NOTES

Training Forest Rangers in Prussia

By W. N. Sparhawk, U. S. Forest Service

A candidate for a ranger (Forster) job in Prussia must be over 17 and under 21 years of age, and must submit with his application a biographical sketch, a birth certificate, a certificate of physical fitness, a certificate showing that he has a good common-school education, a certificate of good conduct from the police department, and a written agreement from his father or guardian to support him for at least five years. He is then allowed to take an oral and written examination in German, geography, history, mathematics, natural history, and elementary physics and chemistry. He cannot pass this examination if he shows serious deficiency in spoken and written German, no matter how good he may be in the other subjects.

On passing the examination he is assigned to a training forest, which is a forest selected on the basis partly of forest conditions and economic development and even more on the personality of the ranger (Forster) or supervisor (Oberforster) in charge. The regulations state:

"The careful and thorough instruction and guidance of the student forester is one of the most important duties of the officer under whom he works. This officer should promote his mental development, accustom him to obedience, punctuality, perseverance, and physical endurance, and should inspire and intensify his love for the forest and the forestry profession."

The candidate serves seven months (October 1 to April 30) under a ranger. During this period he is supposed to become familiar with the native trees and the important shrubs and plants; to learn the life histories and habits of the forest animals; the correct methods of game utilization, the care and training of hunting dogs, and the use of weapons; to learn the laws and regulations dealing with trespass; and to acquire practical experience in all kinds of forest work, including protection of timber and game, cultivation of the ranger station garden and pasture, timber cutting, road building, and planting. He may receive regular day wages for the last three kinds of work. He must keep a diary and submit it once a month to the ranger and supervisor.

After seven months he is assigned to the supervisor's office for five months' further training in field and office. At the end of a satisfactory year's work he is assigned to a forest school where he spends one year studying the theory of forestry. He must then pass an examination to enter a probationary period as a forest apprentice (Forstgehilfer) and is sent for three months to a police school to learn his rights and duties as a police officer. This is followed by a year's field training under an experienced ranger in which he has to do all the work, including the clerical work, of a ranger district. Nine months are then spent in the supervisor's office, mainly as an assistant to the forest clerk. The following two to three years are spent on assignments all over the forest district on silviculture, protection, improvement work, utilization, surveying, timber measurement, and in some cases work for not more than two months in an industrial plant.

Throughout the training period, excepting the nine months office assignment, he must keep a diary showing what he has done and what he has learned each day. Once every two months all the trainees on a forest are taken on a field trip by the supervisor, and once a month each must prepare a paper on an assigned topic.

During the seventh (in some cases, the eighth) year, the candidate takes a final examination for permanent appointment as assistant ranger (Hilfsforster). This consists of six months continuous employment as a ranger, and a written and oral examination. When this final hurdle is passed the name of the successful candidate is entered on the register of assistant rangers, from which appointments are made usually in order of rating. As a rule, a man is appointed to a State forest within the district in which he was trained.

Candidates are forbidden to marry prior to their final appointments, although special permission may be granted in some cases.

It is evident that the training required of Prussian forest administrative officers is not so overbalanced on the theoretical side as some have supposed, with one year of forest school to six years of "practical" training. It is also obvious that in Prussia the profession of forestry, even for the lower positions, is taken pretty seriously, and men who go into it do so intending to make it a life work and one in which they can feel considerable pride.

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England Adopts Madison Laboratory Methods

Methods of measuring the strength of timbers originated and developed by the U. S. Forest Products Laboratory at Madison, Wis., have been adopted by the Forest Products Research Board of England and the laboratories of Canada and India. This action is the outcome of a forest products survey conducted by C. J. Chaplin, head of the timber mechanics section of the Forest Products Research Board of England, in the course of which Mr. Chaplin spent two months studying the organization and methods for dealing with timber exemplified in the U. S. Forest Products Laboratory.

Forest News from France and Belgium

By Nelson Courtlandt Brown

On a French municipal forest

At Epinal is one of the most interesting examples of a profitable and successfully managed municipal forest to be found in France. Although the forest is made up largely of beech and oak, it includes also working circles of Scotch pine and spruce and even some white pine. About 70 years ago in a birch swamp which had repeatedly failed to grow birch, alder, and spruce the American white pine was tried in mixture with an equal quantity of spruce. The latter failed completely in the competition and the white pine proved to be most successful. Now there are 100 to 150 trees per acre, most of them from 16 to 20 inches in diameter. The seed from these white pine trees has been scattered by the wind to distances of two and even three miles, where individual white pines are to be seen growing in with oak coppice. This is a good place to study the maximum distribution of white pine seed by wind, since the seed could not have come from any other source than these original white pines.

In this forest Italian specialists are employed in hewing cross ties from the beech and oak trees thinned at an age of 50 to 60 years. They also hew railway timbers, bridge planks, and scaffold planks. For railway ties the trees are hewed on two sides and if large enough are placed in a rack and ripped through the middle with an old-fashioned double frame saw, one man standing on top of the rack and another man below. These Italians receive 3 $\frac{1}{2}$ francs for making the railroad ties and three of them make an average of 35 ties per day. The railways pay 18 $\frac{1}{2}$ francs apiece for the beech ties delivered at the railway station at Epinal. It costs 1.1 francs per tie to have them transported 7 kilometers to a railroad station.

Douglas fir in France and Belgium

In contrast with the American system of producing forest tree seedlings at large nurseries, the French method is to decentralize the growing of seedlings by having many of the forest guards grow them in small nurseries in the vicinity where the field planting is to be done. The French are now growing millions of Douglas fir trees from seeds sent by Charles Lathrop Pack to reforest the war-devastated regions. In the upland regions of the Meuse, the Moselle, the Lower Vosges, and the Argonne, soil and climate are admirably adapted to the growing of Douglas fir and the little trees do splendidly. Excellent examples of the growth of Douglas fir from 20 to 60 years of age may be seen in the forest of Compiègne near the Armistice Monument, in the Forest Experiment Station of the National French Forest School near Nancy, and at several points in the high plateau region between the Meuse and the Moselle rivers.

The splendid rate of growth of Douglas fir in the upland regions of northern France and in the plateau regions of Belgium may be observed in the Ardennes, where a forest of 125 acres of Douglas fir 45 years of age contained 500 cubic meters per hectare. This is at an elevation of 1,200 to 1,300 feet. During the invasion of Belgium the Germans cut this forest and shipped the wood to Germany.

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Belgian foresters improve Scotch pine stock

In New England and elsewhere in the United States many planted Scotch pine trees have not grown so thriftily nor become so sturdy as they should. Apparently many of these trees are from poor seed. Similar results in many of the European forests led Belgian foresters about 25 years ago to start a most interesting experiment from which definite results can now be shown. Quarter-acre plots were planted with Scotch pine seed of over 20 different origins, that is Scotch pine seed from Scotland, England, Prussia, Bavaria, South Sweden, North Sweden, Finland, Russia, Northern Italy, Northern France, Czechoslovakia, Poland, and several different localities in Belgium. The best sample plot now shows trees more than twice as large as those of the poorest plot. The trees in the former, which are tall and straight and well formed, come from seed developed in the upland regions of Belgium, particularly in the Ardennes. Some seeds of the best plot have been brought to the United States and are being tried out in an experiment at the New York State College of Forestry with the hope that a new variety of Scotch pine can be developed in this country. The seeds showed about 100 per cent germination and the seedlings developed from them have grown more thriftily than any other Scotch pine seedlings developed in the same nursery.

Endowment Fund for Reforestation in Spain

Count Esteban Salazar Cologan, late Spanish Consul in San Francisco, at his death bequeathed a large fortune to the support of reforestation in Spain. The income from the fund created by his will is estimated to amount to between 5 and 6 million pesetas (about \$1,500,000) a year. The testator indicated by what method he wished the work of replanting to be carried out in various provinces of Spain, and entrusted the guardianship and administration of his bequest to the School of Forestry Engineers of Madrid.

The count's enthusiasm for reforestation is said to have sprung from the impression made upon him by reforestation successes in California.

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New Zealand Planting Project

New Zealand Forest Products, Ltd., has undertaken as its fourth reforestation project the planting of 55,000 acres of Monterey cypress, California redwood, Douglas fir, and eucalyptus at a location about 132 miles south of Auckland. With an annual rainfall of 65 inches well distributed through the year, a soil which is a combination of pumice and deep black loam, and annual temperature extremes of 50 and 80 degrees only, timber grows very rapidly in this region. Monterey pine planted in 1885 and milled in 1914 attained an average height of 92 feet and an average diameter of about 4 feet, and Douglas fir grows 1 inch in diameter in a year.

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Grade Marking in Northern Europe

In Norway, Sweden, and Finland, which with Russia form the most important source of softwoods in the international trade, the grade marking of lumber has been carried on for almost 100 years and nearly every piece of lumber shipped by responsible mills is grade marked. This has stabilized the North European export business to a remarkable extent and has done more in the way of market extension than any other kind of advertising could possibly do. Even in contracts of foreign governments certain brands are not infrequently specified. Unbranded lumber from these countries is looked on with suspicion by foreign buyers and is sold at considerable reduction in price even in cases in which an inspection would not reveal inferior quality. Both the Swedish and the Finnish Exporters' Associations maintain their own experts in the principal foreign markets who check up on claims against Finnish and Swedish lumber.

Chestnut Troubles in France

Rapid cutting threatens to exhaust the chestnut forests of France, according to a report by the commercial attache of the Paris Embassy. These forests had already been drained to a serious extent when the discovery of the method of extracting tannin from chestnut trees and the development of the tanning industry greatly accelerated cuttings. Forest fires and the so-called ink disease have also made their inroads, and in some districts owners of chestnut groves have thought it best to cut them in order to prevent their destruction by these agencies. The intention to undertake cuttings must now be announced before local authorities, but this requirement has been largely ineffective.

Under a bill now before the French Parliament no owner could cut more than 10 chestnut trees at a time without the permission of the public authorities, trees less than 50 years old could not be cut except by special authorization, and owners would be obliged to cut trees level with the ground and to replant at such a rate as to replace all trees within two years. Under these conditions land on which new chestnut groves were established would be free from taxation for 20 years.

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Increase in Forest Area of France

France exports more lumber than she imports. Nevertheless the Ministry of Agriculture states that the present program of reforestation insures the continuance of a net annual increase in forest area. The reforestation policy in force provides not only for planting by the Service des Eaux et des Forets in the national forests and in adjacent lands whose owners desire such planting, but subsidies, in money and in kind (seeds and saplings), to townships and individuals interested in reforestation.

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Afforestation in Ireland

The Irish Government has acquired 29,524 acres of land for afforestation and is negotiating with a view to additional purchases. Its plantings up to the end of 1924 totalled 5,400 acres, and during the year 1925 will be increased by 2,000 acres.

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PERSONALS

Gifford Pinchot has been awarded the Roosevelt Medal for distinguished service in behalf of conservation. The medal for work in promoting outdoor life goes this year to George Bird Grinnel. The Roosevelt Awards are given annually in three out of ten fields. The medals were presented by the President at the White House on May 15.

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C. R. Tillotson of the Washington office of the Forest Service will on July 1 take charge of the newly-established inspection district in the Northeast, with headquarters at Amherst, Mass. As the district forest inspector in this region, which includes the New England States and New York, Mr. Tillotson will have charge of the inspection work of the Clarke-McNary Law cooperation and of the distribution of forest planting stock.

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George Alfred Garratt has been appointed assistant professor of forest products in the school of forestry of Yale University. This appointment will enable the school to broaden its work in forest products, particularly in the field of tropical woods.

Mr. Garratt received his bachelor's degree in forestry from the Michigan Agricultural College, and for nearly two years served as an instructor in forestry at that institution. He took his master's degree in forestry at Yale in 1923, having spent two summers as a research assistant at New Haven with Professor Record. During the past two years he has had charge of the department of forestry and engineering of the University of the South, Sewanee, Tennessee.

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Dr. J. S. Boyce, pathologist of the Department of Agriculture, is making a six-months study of Douglas fir canker in England, Scotland, and Ireland.

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George C. Joy has accepted the office of State supervisor of forestry for Washington, left vacant by the resignation of Fred E. Pape. Mr. Joy has been chief firewarden of the Washington Forest Fire Association since 1913.

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R. T. Titus has been employed as secretary and forester of the newly-organized Vermont State Forestry Association. Mr. Titus is a recent graduate of the New York State College of Forestry.

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Ben E. Bush has been appointed to the recently created position of State Forester of Idaho. Mr. Bush was graduated from the University of Idaho in 1903, and has for many years been connected with the Land Department of Idaho.

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H. E. Malmsten has been appointed assistant professor in the forestry division of the University of California. He will assist Doctor Sampson in range management and range investigative work throughout the State. Mr. Malmsten received the degree of B. S. in forestry from the University of Idaho in 1917 and since then has been engaged in range investigations with the Forest Service.

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Professor Mulford of the University of California has been appointed a member of the conservation committee of the California Development Board. This organization is the equivalent of a State chamber of commerce, and takes an active interest in the forests of California and their relation to the future well-being of the State. Professor Mulford is also serving on the board of directors of the Sierra Club and on the executive committee of the Save the Redwoods League.

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K. A. Ryerson has left the position of farm advisor for Los Angeles County, California, to accept one with the newly-established Agricultural Experiment Station in Haiti.

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